

Message Text

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SUBJ: VISIT OF WEST AUSTRALIAN PREMIER TO WASHINGTON

REF: A. PERTH 311 B. PERTH 004

BEGIN SUMMARY: THE WEST AUSTRALIAN FUEL AND POWER COMMISSION HAS PROVIDED ADVANCE MATERIAL ON ENERGY RESEARCH PROPOSALS AND INTERESTS WHICH THE PREMIER'S PARTY WILL WISH TO PRESENT AND DISCUSS WITH WASHINGTON AGENCIES, PRESUMABLY ERDA IN PARTICULAR, DURING CONSULTATIONS IN WASHINGTON ON JANUARY 17. THIS MESSAGE TRANSMITS THESE MATERIALS FOR ADVANCE CONSIDERATION. END SUMMARY.

1. FOLLOWING PARAGRAPHS TRANSMIT ADVANCE INFORMATION ON THE ENERGY INTERESTS AND RESEARCH PROPOSALS WHICH WILL BE PRESENTED BY PREMIER COURT AND HIS PARTY WHILE IN WASHINGTON. THIS INFORMATION IS SUBSTANTIALLY THE TEXT SUPPLIED BY THE WA FUEL AND POWER COMMISSION WHOSE HEAD, BRUCE KIRKWOOD, WILL ACCOMPANY THE PREMIER'S PARTY AND MAKE TECHNICAL PRESENTATIONS TO INTERESTED WASHINGTON AGENCIES, PRESUMABLY ERDA IN PARTICULAR, ALONG THE LINES INDICATED.

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REFERENCES IN THE TEXT TO THE WA MISSION ARE TO THE

PREMIER'S PARTY WHICH NOW BEING TERMED "THE GOVERNMENT OF WESTERN AUSTRALIA INVESTMENT AND TECHNICAL MISSION".

2. GENERAL NOTES ON THE ENERGY SITUATION IN WESTERN AUSTRALIA (WA):

A) WA ALREADY IS A BIG EXPORTER OF IRON ORE, ALUMINA, SOLAR SALT AND NICKEL. THESE INDUSTRIES ARE EXPECTED TO GROW DRAMATICALLY IN THE YEARS AHEAD. IRON ORE SHIPMENTS IN THE FORM OF LUMP, FINES AND PELLETS NOW APPROACH 80 MILLION TONNES A YEAR AND ARE EXPECTED TO EXCEED 100 MILLION TONNES IN THE IMMEDIATELY FORESEEABLE FUTURE. ALUMINA PRODUCTION IS APPROACHING 3 MILLION TONNES A YEAR AND ON KNOWN RESERVES SHOULD REACH ABOUT 10 MILLION TONNES OVER THE NEXT TWO DECADES. SOLAR SALT CAPACITY IS ABOUT 5 MILLION TONNES PER YEAR BUT THIS COULD BE DOUBLED OR EVEN TRIPPLED RELATIVELY EASILY. WA NOW ACCOUNTS FOR ABOUT 9% OF THE WORLD'S NICKEL MARKET.

B) FOR THE REST OF THIS CENTURY IT IS POSSIBLE TO FORESEE A CONTINUING AND GROWING MOVEMENT OF BASIC FOOD AND MINERAL RESOURCES FROM THE SOUTHERN HEMISPHERE TO THE NORTHERN. OPPORTUNITIES EXIST ALREADY TO CARRY MINERAL PROCESSING A STAGE FURTHER IN AUSTRALIA BEFORE SHIPMENT TO NORTHERN HEMISPHERE MARKETS AND THERE IS EXPECTED TO BE INCREASING INCENTIVE TO DO THIS IN YEARS AHEAD. NOWHERE IS THIS TREND BETTER ILLUSTRATED THAN IN WA, A STATE WHICH IS RAPIDLY BECOMING VERY ENERGY INTENSIVE BUT IS REGRETTABLY DEFICIENT IN FUELS. THE STATE'S FOSSIL FUEL RESERVES ARE 400 MILLION TONNES OF SUB-BITUMINOUS COAL, 14 TRILLION CUBIC FEET OF NATURAL GAS AND 100 MILLION BARRELS OF OIL. SUBSTANTIAL URANIUM RESERVES HAVE RECENTLY BEEN DISCOVERED. WA HAS ABUNDANT SOLAR AND TIDAL ENERGY RESOURCES WHICH HOPEFULLY CAN BE DEVELOPED DURING THE REMAINDER OF THIS CENTURY. IN THE LONG TERM THERE IS GREAT NEED FOR NUCLEAR POWER.

C) GREAT OPPORTUNITIES EXIST IN WA TO COMBINE THE STATE'S HIGH MINERAL PROCESSING ENERGY DEMANDS WITH POWER GENERATION USING NUCLEAR AND SOLAR ENERGY. MANY PROMINENT AMERICAN COMPANIES ARE ACTIVE IN WA AND HAVE ALREADY COMMITTED SUBSTANTIAL FUNDS. MUCH OF THE STATES' OUTPUT IS OR WILL BE DESTINED FOR THE U.S. WA WOULD BENEFIT CONSIDERABLY FROM AMERICAN EXPERTISE IN THE ENERGY FIELD AND IT WOULD BE VERY DESIRABLE TO JOIN FORCES IN A CO-OPERATIVE ENERGY RESEARCH PROGRAM WHICH WILL BENEFIT BOTH WA AND THE U.S.

3. LOW TEMPERATURE SOLAR ENERGY RESEARCH: THE GOVERNMENT OF WA HAS INITIATED A DOMESTIC SOLAR HOT WATER HEATER RESEARCH AND DEVELOPMENT PROJECT. A BIG SHARE OF THE AVERAGE HOME OWNER'S

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ENERGY BILL IS DEVOTED TO HOT WATER HEATING - MORE THAN HALF IN AREAS WHERE LITTLE SPACE HEATING IS NEEDED. MOST SOLAR HEATER DESIGNS IN PRESENT USE REQUIRE COMPARATIVELY LARGE STORAGE TANKS CONTAINING A HIGH PROPORTION OF COPPER. THE COST OF MATERIALS IN THESE WATER HEATERS IS VERY HIGH IN CONSEQUENCE. THE GOVERNMENT'S DEVELOPMENT PROGRAM AIMS TO REDUCE SOLAR WATER HEATER COSTS BY USING MILD STEEL INSTEAD OF COPPER AND BY REDUCING THE OPERATING PRESSURE IN THE SOLAR ABSORBER CIRCUIT.

THE SOLAR ABSORBER CIRCUIT USES DE-OXYGENISED AND INHIBITED WATER TO PREVENT CORROSION. A FIRST STAGE REPORT HAS BEEN COMPLETED AND THE WA MISSION WILL LEAVE COPIES WITH WASHINGTON AGENCIES. THEY WILL ALSO PRESENT A PROJECT PROPOSAL, INCLUDING A COST ESTIMATE, FOR THE NEXT STAGE OF THE DOMESTIC SOLAR HOT WATER HEATER PROJECT. AUSTRALIA IS ALREADY SELLING SOLAR HOT WATER HEATERS TO THE UNITED STATES AND THE RESULTS OF THE WESTERN AUSTRALIAN PROJECT COULD HAVE CONSIDERABLE APPLICATION TO THE SOUTHWESTERN AND SOUTHERN STATES OF THE UNITED STATES OF AMERICA.

4. MEDIUM TEMPERATURE SOLAR ENERGY RESEARCH: THE GOVERNMENT OF WA WOULD LIKE TO SET UP A MEDIUM TEMPERATURE SOLAR ENERGY RESEARCH PROGRAM AIMED AT SUPPLYING PROCESS STEAM FOR INDUSTRY. A PRIME TARGET FOR THIS RESEARCH IS THE STATE'S RAPIDLY DEVELOPING ALUMINA INDUSTRY INVOLVING ALCOA, REYNOLDS AND AMAX. CONVERTING BAUXITE TO ALUMINA REQUIRES HUGE AMOUNTS OF FUEL, MOST OF WHICH IS NOW IMPORTED FROM THE MIDDLE EAST IN THE FORM OF HEAVY RESIDUAL OIL. WITH WA'S PLENTIFUL SOLAR ENERGY POTENTIAL IT WOULD BE VERY DESIRABLE TO DEVELOP A SIMPLE LOW COST, EASILY MAINTAINED FOCUSING SYSTEM WITH AN EQUALLY SIMPLE STORAGE METHOD. THE STEAM CONDITIONS ARE COMPARATIVELY MODEST AT 100 LBS PER SQUARE INCH AND 400-500 DEGREES F. IF A WAY CAN BE FOUND TO LINK THE STATE'S SOLAR ENERGY AND BAUXITE RESOURCES THE ALUMINA INDUSTRY WOULD FACE A MORE ASSURED AND STABLE FUTURE. AT PRESENT ALUMINA PRODUCTION COULD BE BROUGHT TO A STANDSTILL BY A MIDDLE EAST OIL EMBARGO. THE WA MISSION WILL PRESENT A TWO STAGE PROJECT PROPOSAL. THE FIRST PHASE WOULD INVOLVE A PRELIMINARY FEASIBILITY STUDY WHICH, IF SUCCESSFUL, WOULD LEAD TO A SECOND PHASE WHICH WOULD EMBRACE LABORATORY AND PILOT SCALE TESTING. COST ESTIMATES WILL BE INCLUDED FOR BOTH PHASES.

5. NUCLEAR APPLICATIONS RESEARCH:

(A) WA'S RAPIDLY GROWING MINERAL PROCESSING INDUSTRIES ARE CAUSING A SITUATION WHEREBY THE STATE IS BECOMING VERY ENERGY INTENSIVE WHILE

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REGRETTABLY BEING FUEL DEFICIENT. IN THE LONG TERM IT SEEMS CLEAR THAT NUCLEAR ENERGY MUST BE WA'S MAIN ENERGY SOURCE. HOWEVER THE LOCAL ELECTRICITY NETWORK IS NOW MUCH TOO SMALL TO ACCOMMODATE STANDARD NUCLEAR REACTOR DESIGNS SUCH AS THE PWR OR BWR. NUCLEAR REACTORS COULD BE SOLD IN WA MUCH EARLIER IF A WAY CAN BE FOUND TO COMBINE THE ENERGY NEEDS OF PUBLIC ELECTRICITY PRODUCTION AND MINERAL PROCESSING. TWO POSSIBILITIES EXIST, THE FIRST TO BE LOCATED SOMEWHERE NEAR PERTH IN THE SOUTHERN PART OF THE STATE AND THE SECOND NEAR THE PILBARA IRON ORE CENTRES OF PORT HEDLAND OR DAMPIER.

(I) NUCLEAR REACTOR FOR PERTH - THIS INVESTIGATION WILL FOCUS ON THE ALUMINA INDUSTRY AND THE POSSIBILITY OF GENERATING ITS PROCESS STEAM REQUIREMENTS IN A COMBINED INSTALLATION WITH THE STATE ELECTRICITY COMMISSION'S POWER STATION DEVELOPMENT PROGRAM. TWO POSSIBLE REACTOR SYSTEMS SUGGEST THEMSELVES NAMELY THE PWR AND

THE HIGH TEMPERATURE GAS COOLED REACTOR UNDER DEVELOPMENT BY GULF ATOMICS.

(II) NUCLEAR REACTOR FOR PILBARA - IN THIS CASE THE HIGH TEMPERATURE GAS COOLED REACTOR SEEMS TO OFFER THE POTENTIAL FOR COMBINING THE DIRECT REDUCTION OF IRON ORE WITH POWER GENERATION. THE JAPANESE ALSO ARE THOUGHT TO BE DOING CONSIDERABLE RESEARCH ALONG THESE LINES.

(B) SOME OF THE MISSION MEMBERS WILL VISIT GULF ATOMICS IN SAN DIEGO TO EXPLAIN THE WEST AUSTRALIAN POTENTIAL AND THEY WILL BE IN A POSITION TO REPORT ON THEIR DISCUSSIONS WHILE IN WASHINGTON. AT THIS STAGE THERE IS NO FIRM PROJECT PROPOSAL TO LEAVE WITH WASHINGTON AGENCIES. THE GOVERNMENT OF WA WISHES TO CARRY OUT ITS OWN PRELIMINARY FEASIBILITY STUDY FIRST. IF THE RESULTS ARE PROMISING, IT WILL HOPE TO PRESENT PROPOSALS AGAIN WITH THE IDEA OF CARRYING THE DEVELOPMENT A STAGE FURTHER.

6. LOCAL ALCOA HEAD (US) HAS INFORMED CONSULATE THAT FIRM HAS COOPERATED WITH FUEL AND POWER COMMISSION IN SUPPLYING NEEDED CONSUMPTION AND TECHNICAL DATA IN RELATION TO BOTH MEDIUM TEMPERATURE SOLAR RESEARCH PROJECT AND NUCLEAR APPLICATION STUDIES. HE STATED THAT ALCOA QUITE INTERESTED IN EXAMINING BOTH IN GREATER DETAIL AND COULD POTENTIALLY BE INTERESTED IN PARTICIPATING IN SOME FORM.
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